

HOME COMPUTING WEEKLY

AN ARGUS SPECIALIST PUBLICATION

June 4-10, 1983 Vol. 112-63p



**Design a screen
and be a star!
with
Character
Designer
from**



Don't be a mug!



**Gribbly mugs for
150 winners**

**"Computers changed
my life". See p.41**

New Spectrum not imminent

Imagic Research has spotted rumours that the launch of a new 128K Spectrum is imminent.

Details of an upgraded Spectrum Plus, which would add 64K of memory, first appeared in the computer press. However, a spokesman for Imagic Research said: "I don't confirm or deny the existence of this model."

"The Spectrum has been so successful that it makes sense to look at the Spectrum family," he said.

Having said that, it's definitely not the right time of the year. The Spectrum Plus was launched in December last year and that was enough to bring the well-ventilated but touchy new machines out.

And Perry are modifying systems about which machines will be launched from Imagic's 64K Plus is reported to have delayed the existence of the 128K model, allowing attention to the Plus2s—the post-ship version of the Spectrum—the only machine under development.

A number of major software houses claim to know nothing of the new 128K model. Staff at EMI



A new addition to the family?

Imagic House, Corus and Ultimate state that they have seen no formal nothing of the machine, and are not involved in the development of software to support it.

And Prime, the software house which was in at the origins of the Spectrum, denied all knowledge.

Boogie on down

Vinny Gasser is about to launch the first computer musical. The new game for the C64 is called *Chordmaster*.

Programmed by Tony Gibbo Gasser and Mark Harrison, who created such games as *Imaginarium* and *Sound Effects* for the Spectrum, Gasser-Harrison consider it a real piece of music.

Richard Bailey, the bass player, wrote the notes of Funky even

trying to pick up good tunes for the *Electronic Music*. A little computer music after famous songs like *Rocky Top*, *Swamp Fox*, and *Bluesy Arrogance*.

Bailey must also try and make the keyboardist—no easy task when they keep trying to sabotage his piano/keyboard.

The game will be available on 12 June for the C64 at £19.95.



**In depth review
of Amstrad's
Jump Jet**

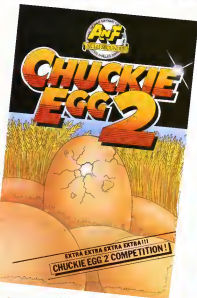
**Cookie monster
on the TI-99/4A**

**Spectrum joystick
interface review**

**Amstrad machine
code—the
easy way**

**Have a
shot at
our
gunboat game**

A great NEW game from A&F.



Our latest "action-adventure" of "Chuckie Egg" has been called in to help a "Shovelware Egg" manufacturer sort out his automated factory, which has gone haywire. Being using of the skills he acquired working in the hair industry must get the wheels of industry turning.

Not only does Henry have to collect the ingredients to mix the eggs, but he will also have to collect the parts for the eggs that go inside the eggs.

As if all these problems weren't bad enough! There are a number of other "hair-related" things you'll need to find and use to be able to complete the task. Things like banders, bits of printers, keys and many more.

Chuckie Egg 2 contains 120 screens, plenty of surprises and is a true adventure game - you don't just look things up, you actually move them and use them.



Great games. Great ideas.

A&F Software, Unit 5, Canal Gate Industrial Estate,
Woodbine Street East, Rochdale, Lancs OL16 5LR
Telephone: 0706 247171

Spectrum 48K

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HOME COMPUTING WEEKLY

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100

As the software houses are making it so easy to open up the commercially printed software by taking images of photocopied relay cards, I wonder if they might consider placing the products in a trade store themselves?

For example, many images (pre-1944) taken were typed on notebook paper or address-rod inserts, as in the case of Akhmed. However, when I obtained my copy of the game, by mail order from Images themselves, it came in an ordinary Manila envelope box. Am I to believe that this was poured, even though it came almost from the middle East?

It now also seems that Microsoft is jumping on the Linux wagon. In its new multi-vendor ad-campaign Everyone's a Wally was on sale in one local computer shop in an A1 cardboard box for \$9.95. However when I went into a large town and was looking for a computer retail chain,

stret. I saw a in an ordinary machine box for \$7.95! The only way I photographed and the whole pack seemed great — but how can we tell?

Could the manufacturers possibly put a note in their advertisements or catalogs — *Market Research does* — and state in what packaging the goods come?

I could state many other examples — some of which, I feel, perhaps take the edge out of cardboard boxes when they don't sell too well and transfer the rage to a creative one, e.g. *Carla*, which (Baby Thompson's) *Decorations*, *Minute Day*, *Belated's* *Am. Race* and *King Richard* have been seen first in boxes, but then changed afterwards to the cover.

Another thought, Boston:
 Here's your chance to get your
 opinions off your chest. Write
 to us and express yourself —
 your view is just off your letter is
 printed here!

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SPECTRUM

Correspondence: marco@marcofranceschi.com

TI-99/44

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REGULARS

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Combinatorial

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BASIC LING



Jon Wedge, Jim Barker

NEW

A new series of Commodore TV's home computer games, this "a Piece", will soon be going on the air. The series will last for six weeks and include reviews of the Commodore 128, the BBC B+, the Amstrad CPC64, the Enterprise 128 and the Atari 130 XE. This will be the first TV appearance for many of these new computers.

Tony Crowther, author of Monty Mole, Pong Myths and Orpheus will be a guest during the series and Alan Bell and David Campbell, co-authors of Llamas, will also be interviewed.

Many of the new machines being reviewed were still in prototype form when the program was recorded and were only available to the BBC or Piece team on the news understanding that they were to come soon. According to Commodore TV, on the day Amstrad's marketing manager arrived with the BBC B+, Enterprise's technical director was leaving with his 128, meanwhile a Commodore 128 lay safely locked away in a cupboard.



"Hurry up or I'll drop 'em!" Bobby Hale

Radio BASIC

Commodore programs set to be being broadcast on radio as part of an advertising campaign by 4 Windows to help subscribers turn their new high growth computers.

The campaign is running on six local radio stations: LBC, Radio Four, Radio 203, Heartland Radio, Essex Radio and Radio West. All computered advertisements are broadcast at 8.30pm, and the programs will run on Amstrad, BBC, and Spectrum computers. Listeners will be able to record the radio 4 Windows Electronic Secretary, live from their radios and then load and run the programs on their computers.

The last broadcast will be on 4 June.

Eye aid

If you're fed up of getting very eyes where you sit in front of your computer all evening, then Windows & Electronics Ltd members the answer to your problems.

Windows & Electronics has just released a TV filter which cuts down the glare from your screen and so reduces eye strain. The filter is available in each, varying from 9 inches to 20 inches and sizes and heights are included to make fitting a simple matter.

Windows & Electronics, 4 Lane down Way, London SW6 7HG



The new Toshiba data recorder

A new data recorder is now available from Toshiba. The model, the TDR-100, is a compact and portable unit for only 1000 to 1500. It features a type AC/DC operation, a tape cassette and monitor switch allowing infinite print at print ratios.

The price for each £24.00.

Toshiba, The W. Toshiba B. London SW14 6L

Software update

British software is at last breaking into America, according to Digital Integration. Palen's Flyer was featured in the UKA on the Flyer label on 1 May and so far it looks like being a success. Digital Integration's Dave Marshall said "This is a significant achievement considering penetration of the US market by British software has been very difficult." The game is still available over here for C64 £10.95, C14 950, Spectrum £17.94 and Amstrad £13.95.

Turkey's Super Popcorn II has just been released on the Amstrad and Spectrum. According to Turkey's follow-up to the original game was written because "the public have been crying out for a sequel". The makers say that there are many more fascinating features incorporated into the game so make it more interesting and challenging to the player.

Activision has just added another new title to its wide range of games, Star League Baseball for the C64. There are also two thoroughly British sports games from Activision, On-Court Tennis and On-Field Football both for the C64.



A Super League Baseball and On-Field Football



B Digital Integration's Fighter Flyer



C View from the cockpit in Home



Title	Machine	Price	Publisher
Galaxian	MSX	16.95	Koala
Yapper	Spectrum	17.95	US Gold
The Code Machine	Amstrad	17.95	Perimeter
Backgammon	Amstrad	16.95	CP Software
Demigrip	Amstrad	16.95	CP Software
Hit A Miss	C16/Plus 4	17.99	Vicomputer
Cave Fighter	C16	16.95	Builder Box
Hammer	Spectrum	13.95	Builder Box
Scrabble	Spectrum	13.95	Builder Box
On Court Tennis	C64	110.99	Activision
Star League Baseball	C64	110.99	Activision
On-Field Football	C64	110.99	Activision
Save	BBC	14.95	
		17.95	Activision
Super Pipeline II	Amstrad	16.95	Turkey

Wally's birthday

Wally Winks was one year old on 1 June 1985. To date he has started in three very successful games, Asteroids, Prisoners and Everyone's a Wally. He has now got his own game called Warbert's Demonic Run.



Wally the mechanic

Wally Winks, employee of Wally, recently interviewed this eleven year-old on the occasion of a No 30 but he said "I'm very happy to have survived for so long — I really had a very busy weekend with a paper clip and a packet of jelly babies last week. What a weekend, this has to be going the wrong way — I'd better go and oil the driver."

Wally Winks, at the Broadway, Twickenham, Berlin

Watch out!

Arthur Bole of Headford, Devon is the lucky winner of our lucky wheel seasonal competition. He answered all the questions correctly and will shortly be receiving his very own Commodore 6400 with keyboard.

Here are the answers to the questions:

1. HCW14 was available on May 21 1985
2. The clock goes backwards in October
3. The year 2000 will be a leap year
4. Greenfield is on the River Thames
5. The speaking clock is now a man

Congratulations to Arthur

Cleaning up

Reader has just produced a product which will protect sensitive electronic equipment from the hazards of electrically noisy environments.

The new product is called the Sentinel and works by using electric power lines to pick up external radio wave interference — ranging from signals induced by lightening to those caused by other machinery found used nearby. According to the manufacturer the Sentinel filters, stores and absorbs this interference to provide clean power for your equipment.

Reader, Dunbar Rd, S Barnet,
Barnet, Herts, W. Sussex PO19
1NE



Black noise system

Kempston Interface

Kempston is producing a distribution for the Spectrum which, according to the makers, has been designed to offer the program manager of user facilities in a convenient and efficient way. Kempston Interface can work in both "robotic and stylish".

Features of the new disc interface include an 8K 8255 based operating system, user advanced BASIC, overlay technique, support single or multiple disc drives up to a maximum of four.

The interface uses 16K and, says Kempston, it marks an important change in the home computer market since the period for more storage and faster access is proving all the time.

Kempston, Slings Way, Walsham Rd Ind Est, Kempston
RG24 7AF



Future training

A new computer training centre was officially opened in Watfield on 16 May. The centre, known as Future, is based on British made Future computers, has been awarded by British Computer Association, a Watfield training centre.

The centre has been designed to provide high quality computer applications training on VTechnology, to the public and also local businesses.



The opening of the Watfield centre



Roald's new found guest

Showing off!

There will be several famous names present at the Computer '85 show, 7-9 June at the Royal, Manchester, London.

Clashmore Band (aka, Mike Clark and Martin Williams), will be present at the opening of the show at 10am on 7 June. They will be hosting Roald Dahl's final adventure, A Trip to K4.

On Sunday 8 June, UK Warriors, the international group will be giving a series of displays, which will tell the story of horsemanship. They will also be having a go at some of the breathtaking stunts which will be on show.

Microsoft's Charlie '80 will also be on show and there will be a special version set up in the games room for visitors to play

The highest scorer will receive a Commodore 128, plus, there will be a prize off on the final day of the show.

Stephen Green, captain of England's archery team will be attending the last day of the show to help launch a new year's new game for the C64, Stephen Green's First Climb. He will be doing all 15 as a sign autographs and talk about the game.

Also on show for visitors to try will be Tim Lever's album, Dynamite, Esplanade's 3 Walls, International Football and Manchester's newest attraction. There will also be the chance to see the Video Magazine from Computer-phonation which produces computer produced portraits through a video camera.

The UK Computer Show, Royal, London



A right Charlie

Roald Dahl's Charlie and the Chocolate Factory, originally a book, has been portrayed as comic and screen — and now you can play the game on your computer.

And if you've never read the story, you can buy a special gift pack which includes the book, for £9.99. It makes an attractive present. However, if you're just interested in the game, it can be yours for £4.99.

The game, which runs on the

Spectrum, comprises four fast moving arcade games as well as a multi-screen arcade adventure set in the chocolate factory.

Bill MacMillan has worked together with Soft Option to prepare the program. You'll find all your favourite chocolate stars, the Wonka 50c, Violet Beauregard, Augustus Gloop, Mike Teavee and of course, Charlie and Willy Wonka.

Bill MacMillan, 2 Graham St, London W1R 3JA

Link up

Times has produced a printer interface for CPM, CTR, Commodore Plus 4 and VIC-20 computers.

According to Times, the Connection is a fully intelligent parallel interface which plugs into the data socket so you can select from a wide range of quality printers.

The Connection supports Epson, Gemini RX, Prowriter, Quadra, NBI and many other popular printers. The Times version costs £14.95, and the version for all other printers is £79.95.

Times, Unit 18 Broadland Way, Severn Valley Industrial Park, Tipton Rd, Birmingham B26 4PL

Wolyn Systems, the company which has been marketing Curly Speedy controllers for the last eight months has recently announced a 30% price cut for the product.

Tony Jude, Wolyn's director of sales says that this is due to quality and economy alterations. He commented "Less than 1% of the 10,000 units we have sold have been returned by customers as unsatisfactory, and a 100% first-time fix rate which have enabled us to cut our price."

Wolyn Systems, Redditch Northants Rd W12 7AA



Curly Speedy

WIN A MUG!

There are 150 cute Grizzly mugs for this week's competition winners and entering couldn't be easier.

Some of you may have been wondering what Driscoll was doing on his day off.

How did Harris can be revealed. He was buying 150 delightful pottery mugs for family PCW readers who was this week's champion. These are unique pieces, not available in any store.

Each map features a portrait of Gribble and all you have to do is who does is find the differences between the Gribble pictures shown below.

Geiboly is a quiet, kind
crafter who doesn't make too
much fuss but has only his
bubbles with which to convey
the Taper and Seed Pods
which he will be very anxious

He is trying to protect the griddles, future griddles, but they are hidden around the globe. That drives Griddle's go nuts. If he catches it, he'll, like for Griddle is far from easy and you are likely to find something new (and your two hands). Just imagine what it is like for Griddle with only one face!

Anyone can major this week's competition and 100 of the special drugs will be sent to our winners by Hovion Consultants who look after Griffiths and all the little problems.

Study the two cartoons — there are a number of differences between them. Circle the differences on cartoon B and read the cartoon and compare it to cartoon A. Write clearly the number of differences you found on the back of the envelope.

Post your entry to Griffith
Competition, Home Computing
Weekly, No 1 Golden
Square, London W1R 1AB.
The closing date is first post on
Friday 21 June 1982.

1. *Journal of Management Studies*, 1997, 34, 1, 1-14.

as you walk, but each entry must be on an official coupon — not a copy — and sealed in a separate envelope.

Important! Please follow carefully the guidelines on entering — incomplete concepts and names with no numbers on the back cannot be considered. If you are a winner, the reason will not be a label for your prize, or that winning is essential.

[illegible]

Exercises will not be assigned from *Concepts of Art: Appreciating Public Art*, *Maps and Landmarks*, and *Abstract Principles of Color*. This exemption also applies to manuscript facilities and access to the computer.

These values are the same as those obtained by the *in vitro* method.



Heaven Consultants Grizzly Map Competition

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100

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[illegible][illegible]

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WE'VE JUST STARR'D AT THE
BIGGEST COMPUTER GAME SHOW
IN THE WORLD - THE 1985
COMPUTER CONGRESS, LONDON 84

SOFTWARE



Jammin

Jammin is a game with a musical theme. Help Blinky Rodney collect his instruments and make beautiful music — well, that's the theory.

The screen is divided into several multi-colored sections. The four corner ones contain musical instruments, while the four central ones contain triangles. Across from the centre to the corner sections is one set of two rectangles of moving coloured squares. You are only allowed to jump on to a square of the rectangle which corresponds to the colour of the section in which you are standing.

Having reached a corner section, Blinky avoids the enemy and steps on to the instruments, picks it up and starts one of the musical triangles flinking. It is at this point that the basic rule which has been drifting around the screen quite heavily becomes a puzzle. Allow the note to reach Rodney and the instrument returns to its original position and you must start again.

When you do eventually manage to get an instrument to its appropriate triangle a little note appears and begins to bounce around. It don't quite know what he is supposed to do but, as on some occasions when I walked through him the program failed to react him was plenty, leaving him a stain on the screen while the rest of him walked off.

The only thing that kept me awake was the music; it was loud while played constantly.

J.R.

Price: £1.25

Publisher: Amsoft

Address: Broadway Hse, 189
Kemp Rd, Brentwood, Essex
CM14 4BP

AMSTRAD



Money Manager

This is a home account analysis program. By using it you can record and manage your income and expenditure over the period of a year. You can set up a number of accounts, classify income and expenditure passing through them, then sort them by each member above, and in addition by date. You can even establish why spend how much! Output can be to the screen or printer in the form of monthly or yearly accounts, or for a graphic interpretation, a pie or bar chart is shown on the screen.

The program allows you to save updated statistics in tape, though the advice given in the manual constrains that given to Amstrad, namely, always use new tapes for sequential data. The manual then had to be very clear, but often fails. It isn't good enough to write "here is a fact, it's important, think about it." Ordinary mortals need to be told exactly why, and how the facility can be used to best effect. Similarly, to set the program up to your own spec requires you to wade through to page 14. Sample accounts are provided, but no manual so to have to get the best out of them.

While setup is reasonably easy, presentation on screen often falls down with bits of labels missing, and what seemed to be accuracy as the bar graphs. Sorting is painfully slow, and general "garbage collection" makes for frequent machine hang-ups.

Sound ideas, most work needed on both program and documentation. B.M.

Publisher: Compact Systems

Address: 2 Flanchford Rd,
London W12 9ND

AMSTRAD



Super Teams

This file bears the description "A tape-based analysis for the BBC Micro II" and before we go any further I feel that I should admit to being a great sceptic about such things.

The program has a long introductory sequence giving a full description of its facilities and its basis. This is required for there was no documentation supplied at all. There are even references to books that you might like to consult.

This title refers to the various types of group dynamics that you can analyse using the program. There are graphs for individuals and statistical data for groups. You can even check up on certain variable data in history and the rhythms of the people involved.

However, there is little to the program regarding the predictions. It's not much more than the file-system program supplied with all BBC machines as part of the Wylemer package.

There are also a couple of bugs, making the package more difficult to use. There is no record of the data taken from program to program. This means that for each run you have to retype your data into the program. This is a simple loss of BASIC could have avoided this.

There is no error message appearing on the screen if you enter an error. There you are sent straight back to the main menu without any explanation.

Overall, this is a specialist package that will appeal to very few. R.S.

Price: £10

Publisher: Olympic Software

Address: 10 Salford Chase,
Hemel Hempstead, Herts HP1
2LP

BBC





Jump Jet

Combat and flight simulators seem to be in vogue these days. Following *Demonstrator* and *Space* '90 from US Gold and Microfront, here we bring you right up to date with modern flight and warfare techniques.

A vast improvement over *Amazing's* much earlier flight simulator *Flight Path 337*, this program puts you behind the controls of a Sea Harrier VTCO. After reading the clearly written instruction manual, the simulator itself is not as daunting as it may at first appear.

Vertical take off and landing is achieved simply by changing the angle of the plane's jet nozzles to vertical, after ensuring the flaps are down. Taking the engines up to full power causes the jet to rise. The screen at this point shows an aerial view of an aircraft carrier deck above a simplified representation of a Harrier's cockpit. As the plane rises the thickness of the jet thrusters on the deck and the screen split to give a head-on and side-on view of the carrier with the jet above.

Reducing power at this point allows you to hover over the carrier. Pulling back or pushing the joystick causes the plane's nose to tilt up or down and the jet nozzles forward or backward accordingly. Increasing the height above 50 feet causes the screen to change to a conventional view from the cockpit complete with moving clouds and waves.

Forward motion is achieved by tilting the nozzles at 45 degrees. When sufficient forward momentum is achieved, the flaps and undercarriage are raised and the nozzles adjusted to their horizontal position for normal

in flight

The console shows all the necessary instruments for fuel, height, speed and power. Additionally, undercarriage, flap and nozzles positions are graphically displayed at the right of the panel, whilst the artificial horizon is at the centre. On the left of the panel is a radar display which shows the location of the carrier and enemy planes, and it can also calculate their range.

By far the most rewarding aspect of this simulation is the ability to choose a target, navigate to waypoints and destroy and then to return to the carrier or capture another plane if enough fuel remains. 'Sounds easy but can't try it'!

Landing is particularly difficult especially if one of the higher levels of play are chosen. The five levels range from *Proctor* on a calm day to *George Cyprien* in a storm with maintenance crew. The level chosen also determines the number of waves which will be tolerated before resulting in a crash.

The only criticism I have of this game is purely a cosmetic one relating to the console which looks a little overcrowded because of the use of the lettering. Otherwise the graphics are quite good. I especially liked the increase in speed of the clouds and the waves in sympathy with the Harrier's speed.

Although *Amazing* has used its *Wapname* monitor to add speech to the program, the quality of synthesis is rather stale low, but clear, to resemble the pilot's utterances. The voice is usually software driven and will work on any PC.

All in all this program is a jump at the right direction for *Amazing*.



The Investment Monitor

As an aide memoire, this is a program to help record and analyse investment in various kinds of stocks, shares and bonds. Written in BASIC, the code very well designed forms and input error traps, setting up is helpfully described using plain language in the screen paying documents. Instead of getting bogged down in files, fields and records, the author refers to cards in a card index file, then introduces the notion of automatic calculations where relevant. Demonstration information is included, but not incorporated in the documentation.

Up to 50 separate investments can be entered for, and a menu allows selection of type — accumulation units, revenue units, accumulation units, revenue units, accumulation units, revenue units and gifts. The history of each card, and the nature of the calculations to be made is automatically displayed by this screen. Details can added in appropriate places on the cards, and when input is complete, you may then choose to review all your investments, or just look at one, update, sell, and issued current values. Another screen returns to be calculated overall, or on each type of investment.

Saving of both programs and data can be made in either tape or harddisk, and, if a printer is connected, built in software allows dumping of details factors that normally cause sophisticated programs lack.

Both the documentation and program are crystal clear to use, thus any novice can use it. The code. There's a one for it, however, and certainly find it worthwhile.

Price £12

Publisher: Michael Stanford Software

Address: 3 Computer Rd, South Chesham, Bucks HP8 3EQ

SPECTRUM



★★★★★

Flipped



★★★★★

Hooked



★★★★★

Keen



★★★★★

Tanning



★★★★★

Comatose

Price £9.95

Publisher: Amazing

Address: Unit 10, Victoria Trading Estate, Watnall Rd, Darford, Kent

004





Frankenstein 3000

As a distant relative of off-Break you have discovered the location of the mansion, induced your son and him of a passing infatuation, so one sufficiently small to allow you to grovel in through the woods and on round his body ingesting the start of a new life.

Starting as the trachea, you must stop your son from bodies of pure from Ken of frogs in the forest! If you don't suffer too much damage, as we up all your oxygen, you can then start on the right hand, avoiding menacing enemy patients, the left hand where 1000 enemies will attack back, and on to the stomach, collecting against such which to effect repairs on route.

In the morning, avoid the first trial, but collect the grey house for me in a tubular. I couldn't get any further, one out of six! But I'm reliably informed that the heart and brain are actually inside. Every now and then, you get the chance to say compact superlatives that replenishing your supply.

The graphics are excellent bearing a striking similarity to the real thing. In fact, the whole production is very well done, down to the loading screen, sound, movement and controls. It's a really nice idea, but the business of the concept and the clock presentation are very appealing.

You can grope. This appears to be a conversion from an American game. Who can't I up the divided three: legs or the picture or third eye in the monitor? **R.M.**

Price: £5.95

Publisher: Icon

Address: 85 High St, Colerith, Tyne and Wear



Confusion

"The fusion of mind and machine" is the enigmatic slogan that has accompanied Interserve's recent glossy advertising campaign, yet none of the adverts have revealed any clue as to the nature of the game. Fortunately the copy, I am always wary of such advertising, has having just spent the past three days playing Confusion I can confidently say that it is one of the best and most original programs that I have seen on any money in several years!

The action takes place in a 64 story industrial plant which is involved in the production of confusion bombs. Each floor is constructed from a series of playing cards plus one empty corridor, just like the sliding block puzzle that children play with. Each of the puzzle's corners consists of four wings of differing shapes, wandering around the floor were is a brightly glowing spark. Your task is to guide the spark to a bomb by sliding the puzzle in such a way that they create one continuous length of face which leads to the bomb. All of this is carried out in a race against time as the bomb at the top of the screen burns away.

As your ability increases you will encounter mutually hostile and worse dangers from the specialist system, these dangers also move around the face and will dampen your re-focus when they inadvertently let one touch the spark.

The whole game is presented with dazzling colour and noticeable attention to detail, I cannot recommend this game too highly! **J.R.**

Price: £5.95

Publisher: Interserve

Address: 14, London St, Reading RG1 1SQ



Strangeloop

This is an arcade adventure game set in a space age robot factory. If you take to the game it will keep you occupied for weeks.

Your objective is to regain control of the robot factory by finding your way to the particular room of the 250 in the complex. The game designers have considerably provided a great time option to give you some overnight breaks. For disaster relief breaks you can freeze the game at will when required.

As it is an arcade adventure there is an end point to worry about. You master your space person around the screen with the joystick. Any useful items encountered can be picked up or simply moving over them. Halting the space hero puts you into pocket mode. This allows you to use and move on items using the joystick.

The screen not only shows you the current scene you're in but gives you details of the items in your pocket. There is also a compass which points towards the control room you are trying to get to. In wandering through the various rooms your space suit is likely to get cut by flying metal. This screen shows you how many bolts you have, how many spare patches you have and how much oxygen is left. I found I didn't have much time for repairs though as I was too busy trying not to fall into dissolving heaps of chemicals and avoiding other bits of nasty machinery.

The design of the rooms is quite original and generally the game has good graphics. Only the price of the game makes it a desirable buy. **L.C.**

Price: £1.95

Publisher: Virgin

Address: 3-4 Vernon Yard, Portobello Rd, London W11 2DX



Kikstart

This is an off-road kicking game where you do wheelies and jump over obstacles. There are eight courses to choose from, and a game consists of your choice of any three from the eight. A rather unique feature is that two people can compete simultaneously.

The program opens with some warning symbols and you choose some mode of play, that is, one or two players and one or two joystick. Choose your chess course and you're off. The screen is split into two, a half for each player. The joystick, or keyboard, allows you to accelerate, jump and do wheelies as required, though the outcome is not always as required. I kept on falling off my bike after attempting jumps over buses etc.

The art apparently is to go fast over trees, hedges and rows of barrels, to jump over the water, vine and buses but to go slow at brickwalls and pits.

Being a coward at heart I quite enjoyed seeing second place courses crashing and falling off without really injuring myself. Also I didn't have the bother of having to clean the bike afterwards. This game is interesting and entertaining because in these it is different. The graphics are good and the two player facility means you don't have to take it as turns.

As the price I think this is very good value and is the sort you really like to come back to again and again. **L.C.**

Price: £1.99

Publisher: Mauderston

Address: Park Lane, 111 Park Rd, London NW9 7TL

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AMSTRAD



C64



C64





Numbers of Work

Three packages, part of Collins' Brainpower series, in a two disc and manual set. It can also be purchased as a twin cassette and manual pack. The aim of the series is to teach new skills and then to show the user how to apply the skills learned.

The manual suggests three different approaches to using the package. The first is to jump straight in and use the teaching program or as an alternative you could sit and read the textbook to learn how the teaching program works. The third system is to go directly to the application program and use it to help you solve your own problems.

The teaching program is comprised of eight sessions each with an optional tutor — so you can not if your resources are getting better — and a progress report. The tutor sets a target for you to attain in the test session before moving on to a new lesson. The subjects taught are working with fractions, ratios and proportions, decimals and percentages, applying percentages, growth rates and indices and a final section on useful techniques.

Each session is easy to use for the student because as the screen wishes to revise a particular subject. The application program is equally easy and helps solve user problems quickly.

It's only drawback is the price.

M.W.

Price: £24.95 (hard)

Publisher: Collins Soft

Address: 4 Grafton St, London W1D 7JZ



Chopper

Chopper is a shoot-'em-up game with you piloting a helicopter. The game loads up with a menu screen. From this screen you can obtain instructions about the four phases of the game, the high scores, and see the skills level. Unfortunately once I left this screen I could find no way back.

As the end of a game, no more lives, the game restarted. I wanted to re-read the instructions and change the skills level (this meant switching the computer off and reloading the game).

The opening screen has you flying past many choppers. You have to shoot them down and avoid their fire. If you are successful you are taken to the refuelling screen. Careful positioning of your chopper allows you to refill in flight from a tanker plane. Another screen presents you with fast moving enemy balloons and guns. If you manage to survive all this you eventually get through to a screen where you have to shoot through a shield in the rocks and destroy the underground enemy power station.

During the game the screen shows your score in dots, your remaining lives, highest score, and skill level. The graphics aren't bad but not outstanding. The game itself though didn't grab me, it wasn't difficult enough from other shoot or fly shoot games. On the other hand the game is reasonably priced so if you have a yen for choppers, it might appeal. Of course all games aren't born tomorrow, comments on the relative simplicity of this game makes it suitable for the younger age.

L.C.

Price: £12.95

Publisher: Creative Sparks

Address: 286 Farnborough Rd, Farnborough, Hants



Flip!

This game is being introduced as a cartoon strategy game and you can be forgiven for thinking that's an original idea. In fact it involves matching pairs of numbered graphics to reveal a hidden word.

In game version it is the many new features of the game that make it fairly disappointing. Firstly you are given the choice of normal words, user words, computer words or the more difficult scrambled words. You can choose the two player game or the solo practice option.

The main screen is a grid filled with boxes and an arrow which is controlled smoothly from the keyboard. Choose two boxes which are revealed and memorise them. The number of tries you have is recorded.

The cartoon are block graphic animations which take their theme from computer games like Operation, TV sets like 2 Cat, and aim or two sensory themes like the jack in the box. Each is accompanied by its own theme tune with the point complementing each other.

Wild guesses are greeted with a suitable reward and correct answers rewarded.

The words were quite difficult to guess, even with guess of the blocks revealed. The computer always is therefore kind and the two player game is preferable.

I enjoyed it and I imagine the user-defined words could add a further dimension. It's really a game for unexcited parents as it's simple to control by young children with lots of visual excitement. It could also be used in schools for games up to 10.

M.P.

Price: £7.95

Publisher: Icon Software

Address: 65 High St, Conford, York & Wrex



Quickchat

This is a budget game, not in a real sense in which you are the night watchman. Making your own suggestions, you discover the city having a go at you. So naturally, you blast back with your own gun and shoot enemy bombs. Well, you would, wouldn't you? Oh you go blasting and bombing, collecting keys to gun rooms in other areas shown on an overhead screen, so what is effectively a complex and extensive maze.

Graphically, rather good, with smooth movement and some animation, the graphics are 32bit low, but in color. Graphics are control for but I couldn't get the bombs to work, and response to the fire buttons was very slow and inaccurate. Hi-score and demo modes are there, though the running status in the time table are so high that I didn't discover it for a while. There are modest sound effects, but I found these rather annoying.

Given the difficulty in control, after 10 minutes play, I realised the demo mode to see what was a score. There's certainly plenty here to challenge you of true shooting simplicity.

Even though this is very good value, I wouldn't buy it myself. The play doesn't grab me, and even I didn't feel compelled to continue. You may well disagree.

D.M.

Price: £2.95

Publisher: Creative Sparks

Address: Thornton Hts, 395 Farnborough Rd, Farnborough Hants

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A PAIR OF INTERFACES

Cliff Joseph has put his joystick into action to bring you the lowdown on Interfaces

Two new interfaces have joined the merry throng already available for the top-heavy Spectrum console, both of which are Amstrad compatible and can therefore be used with the vast majority of games available for the Spectrum.

The Ram Electronics Mark II is a neat, fairly slim unit, matt black and featureless except for the several control knobs, and when plugged into the Spectrum's rear port stands unobtrusively, in spite again to the machine. It's quite light, weighs a bit, and doesn't seem to be as robust as some other units I've tried: there were no instructions with it, and although it might seem obvious how to plug it in, there should be a warning to remind the user to have the Spectrum's power supply disconnected before plugging in or unplugging the interface.

When plugged into the Spectrum the MK2 needs to be held a bit, not because that's quite a strain on the edge connector, but I personally would prefer it to fit a little more snugly. A look at the rear reveals that the pins sticking into the body of the interface are exposed and look very vulnerable. I know that in "normal use" this shouldn't really matter, but this could well affect on long term reliability, since a slight wobble could cause a slight knock to damage one of the pins and make the interface refuse.

Unlike the edge connector, the joystick socket was a very snug fit. The first game I played crashed, and, when reloaded, sometimes failed to respond to the joystick. I realised that the joystick was firmly plugged into the interface so much more than a loose connection was not responsible for the crash, and it seemed to be fairly in place, but only after giving the joystick's plug a pretty hefty shove into the socket did the game respond properly. Once that was done the MK2 performed perfectly well, but though I can't attribute its responsiveness any doubt about the standard of construction.

The Interface 31 from Bud

Computers seems a more well designed unit. When compared to the Spectrum, it has horizontally, with the socket, rigid, for strength, and power on/off indicator facing upwards. It feels more robust than the MK2, and with the Interface 31 and other features in the face, also looks more attractive. However, the interface doesn't quite fit flush with whatever surface the Spectrum is on, so that no pressure on the interface (holding with the joystick socket, for example) can cause it to wobble just a bit. And, last but not least, the edge connector pins are exposed for a small fraction of their length (though considerably less so than on the MK2). Admittedly, I am expecting here, as these details aren't really major criticisms, but are the only flaws to an otherwise well designed unit. Even so, they are details that could be eliminated altogether — my Spectrum interface fits like a glove, and has the edge connector completely protected by a thick plastic door.

The Interface 31 does have one feature that I haven't yet mentioned, and which goes a long way to alleviating these other minor criticisms. Sliding on the face of the unit is a fairly grey steel button, and when you consider that a steel switch could rise up to five pounds on its own, the inclusion of such a feature is not only a very good idea (saving wear and tear on the power switch), but also represents good value. In fact, I found it an advantage to have a new button that I've been leaving the interface plugged in even when I'm not using a joystick.

Over I'd finished priddling and rubbing them and actually got down to some screen game playing, both interfaces performed well, although the MK2 did actually have the problems that I mentioned earlier. I tried both interfaces with a couple of shoot-em-ups and they gave good, fast responses to the joystick as I powered away at it. The same five options on both units seemed handy, though I found that on some games (such as Firebird's Don't Panic, a

was actually better to have the interface's own fire option switched off for some reason.

When using either joystick with games such as Knight Lore, which require deft and manoeuvring rather than a fire trigger, I found that you do have to be careful, when moving the joystick to differentiate between diagonal movements and simple up/down/left/right movements as you will find that the latter bias goes wandering off on its own occasionally.

On suggestions, I'd say that both interfaces performed equally well, however the construction of the MK2 is definitely inferior to that of the Interface 31, so if I had to choose between them I'd definitely go for the Interface — but of course this is the more expensive of the two so, as always, you get what you pay for.

Ram MK2

Price: £15.95

Manufacturer: Ram Electronics

Address: 106 First Rd, Fleet, Hants GU11 5PA



Interface 31

Price: £14.95

Manufacturer: Bud Computers

Address: 10 Newark St, Lincoln LN1 5SR



MACHINE CODE — THE EASY WAY



In the first of an exciting new series, David Ellis leads you gently into machine code programming

What is machine code?

Machine code is just a list of numbers — that's all. Micro-processors are able to decode, and perform various functions as a direct result. The Z80 chip handles numbers eight bits (one byte) at a time — so these numbers will be in the range from 0 to 255. The following list of numbers is therefore an actual Z80 machine code program.

4 9 205 77 188 201

Each number will occupy one memory location, therefore this program will be stored in an sequential line after the other memory locations.

What do the numbers stand for?

Some of the numbers are instructions to tell the Z80 what action to take. Others are part of addresses and data that are required by the program. The number 77 in the above program is actually part of an address, but in assembler programs it may be an ASCII character 'M', or some form of flag, or an actual instruction — 77 is the instruction to load the C register of the Z80 with the contents of the L register.

How does the chip know what the number stands for?

The answer is simple — it doesn't! The only thing it does know is that the first number is an instruction. It is the programmer's responsibility to make sure that the numbers are processed in the Z80 in the correct order.

In the above program for example, the number 4 tells the Z80 to load the B register with the following number — in this case 9. The number 205 tells the Z80 to make a CALL to the subroutine, the address of which is given in the next two numbers (188*256 + 77 = 4D005). The last number 201 in the instruction is RET, to return from subroutines, which if the program had been CALLED from BASIC would return you back to BASIC.

If by some error the above had been entered, then the B register would get loaded with the value of 205, 77 would become the next instruction, which loads the C register with the L register. This instruction only requires the one byte, so 188 would be taken as the next instruction. This compares the contents of the Accumulator register with the H register. This is also a one byte instruction, so the next instruction is 201 which RET, to return from subroutines.

As you can see, entering the one number has caused the Z80 to perform very differently from the original intention. In this case we've been lucky as the program has returned to BASIC even though the program has not performed properly. In most cases, if you make a mistake, you won't be so lucky — a program crash is more likely!

But what about the error messages?

Sorry — but you don't get any in machine code!

So how do I know when there's an error?

Quite simply you don't! The program will probably crash!

So these crashes damage the computer?

No. It may take a few seconds to cool off, but no damage will be done. Unless of course you lose your temper!

Will an assembler help?

An assembler program will help reduce errors as it does check for various errors, although many of these will be concerned with the actual syntax of the assembler, and not the logic of the program itself. Just because the assembler completes the machine code without error is no guarantee that the program itself will work.

Do I need to buy an assembler?

To program in machine code?

No. For short programs, hand assembling is quite an exercise. For longer programs an assembler is desirable, but not essential. An assembler will save you the trouble of looking up all the Z80 operations codes (and there are a lot) and of working out the various displacements for the jumps. If you're well organised though, and follow a structured approach to the programs, by using subroutines, hand assembling is quite an order.

How much quicker is machine code compared to BASIC?

It's difficult to say really. A lot



depends on how efficient the BASIC on your computer is, and on the type of program. As a rough guide though, it will be from 100 to 1000 times slower. Machine code will also use up a lot less memory than BASIC as well, although this is probably of less importance now than it used to be when the largest RAM size on a home micro was 16K.

Are there any other advantages?

Yes. With a machine code program it's possible to work out the exact time it will take for the program, or part of the

program, to run.

This may be as small as a microsecond, or even smaller, depending on the "clock" speed of the processor. This clock speed is usually given in MHz, which stands for mega hertz. Mega stands for one million and hertz is one cycle per second. One 286 machine code instruction will take, on average, about 10 cycles. So really, 286,000 instructions could therefore be performed in one second.

Most modern computers will run considerably quicker than this, and the timings will be in nanoseconds. One thousand

nanoseconds are equal to one microsecond.

Do I need to learn binary and hexadecimal?

Contrary to popular belief, a knowledge of the binary and hexadecimal number systems is not essential to be able to program in machine code. In fact, quite useful programs can be written without any knowledge whatsoever of these two number systems. However, it's rather like speaking 128,000 on an electric organ and then only using one finger to play it — a lot of potential is going to

waste! Sooner or later, you really will have to learn them.

Is it difficult to learn machine code?

In theory, the basics of machine code programming are quite simple. Some people in home hobby and hexadecimal will be very interested how to do some or machine code (as do many technical books) right from the beginning will probably put you off for life!

Follow the series in HOW over the next few weeks on the Amstrad CPC464 using the 286, and see how simple it all is.

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GUNBOAT



Can you calculate the angle and velocity to sink the enemy? David Muir's game will have you trying

In this game you control the armory of one of the two boats combats.

You have the option to move your boat, fire shells and alter the velocity of the shell. Your enemy is controlled by the computer and fires, moves and changes its velocity at random.

The program uses the following formulae to calculate the parabolic motion of the projectile:

x (horizontal displacement) = $\text{start velocity} \times \text{time} \times \cos(\text{angle of fire})$

y (vertical displacement) = $\text{start velocity} \times \text{time} \times \sin(\text{angle of fire}) - \text{time} \times \text{time} \times \text{gravity}/2$

The angle of fire is set, by the program, to 30 degrees. Rather than have time appearing in the formulae they have been compounded into one complex formula.

When a shell is fired it moves horizontally and vertically at a time, the vertical position of a shell is calculated, the old position is erased and the shell placed at the new position.

The program contains table page, instructions and a large number of BASIC statements so that you can follow its working. Control can be via either cursor keys or joystick.

Variables

px: movable velocity player gun
py: movable velocity computer gun
ax: move
ay: player boat left
cx: computer boat left
bx: number of computer boats
my: 1
my1:1: string at gun boat
mx: player boat position
my: computer boat position
bx: computer boat position
my: move
mx: count of computer boat movement steps
bx: direction of movement of boat
bx: flag to show computer boat moving
mx: my: new position computer projectile
px: py: new position player



projectile: displacement of projectile
countdown: the distance from time projectile
name: enemy and position player projectile
bullet: displacement of computer projectile from initial position
move: displacement of player projectile from initial position
or: adjustment to computer gun range for sea firing
a: changing link colour for hit
hit: damage registers for Defined Functions

How it works

Used Defined Functions

1700 calculates the vertical position of the player's projectile
1705 calculates the vertical position of the computer's projectile
1710 converts a set horizontal position into graphic coordinates so that TEST may be used to check if a boat has been hit by a shell
1715 converts the vertical position into a graphic coordinate



```

10 *-GUNBOAT-
20 *D.MUR 184
30 GOTO 1340
40 *
50 * set up
60 *
70 MODE 1
80 SCREEN 13
90 DEFINT arr=DEFSTR 5-c
100 DEF PRGname=TRN(PI/6)+1116arrMax3/16+prvCOR(PI/6)+COR(PI/6)1112=160
110 DEF PRGname=TRN(PI/6)+11116arr3/16+prvCOR(PI/6)+COR(PI/6)1112=160
120 DEF PRGname=160+11+16+arr DEF PRGname=120+arr+16+7
130 SYMBOL 250, 3, 7, 14, 39, 56, 44, 36, 24
140 SYMBOL 254, 1+0, 224, 113, 56, 30, 52, 36, 24

```

```

150 SYMBOL 253,255,258,259,255,127,127,13,13
160 SYMBOL 252,253,258,259,255,254,254,252,240
170 DIM #1,13
180 #1(1,1) = " +CHR$(141)+CHR$(255)+ "
190 #1(1,1) = " +CHR$(253)+CHR$(143)+CHR$(252)+ "
200 #1(1,1) = " +CHR$(254)+CHR$(142)+ "
210 #1(1,1) = #1(1,1)
220 DIM #2,23: DIM #3,12: DIM #4,3: DIM #5,4
230 CLS
240 WINDOW #1,1,40,20,25:PAPER #1,3:PEN #1,0:CLS #1
250 WINDOW #2,10,20,21,21:PAPER #2,0:PEN #2,2:CLS #2
260 WINDOW #3,10,20,22,22:PAPER #3,0:PEN #3,2:CLS #3
270 WINDOW #4,10,20,23,23:PAPER #4,0:PEN #4,2:CLS #4
280 WINDOW #5,22,22,21,21:PAPER #5,0:PEN #5,2:CLS #5
290 WINDOW #6,22,22,23,23:PAPER #6,0:PEN #6,2:CLS #6
300 WINDOW #7,10,20,24,24:PAPER #7,0:PEN #7,2:CLS #7
310 PEN 1
320 FOR I=0 TO 3:FOR J=0 TO 3:LOCATE 5,10+I:PRINT #1(1,1):PEN 3:LOCATE 29,10+J:PRINT #1(1,1):NEXT J
330 #1(1,1) = #1(1,1)
340 LOCATE #1,1,3:PRINT #1, "VELOCITY"
350 PRINT #1, "SCORE"
360 PRINT #1, "LIVES"
370 PRINT #1, "BOATS"
380 SCORE = 770: SCORE = 770: SCORE = 770: SCORE = 770: SCORE = 770: SCORE = 770
390
400 ' player decision
410
420 EVERY 300,3 SCORE = 990
430 EVERY 200,2 SCORE = 990
440 EVERY #1,1 SCORE = 990
450 IF I=1 THEN I=0:FOR I=1 TO 3:PRINT:GOTO 400
460 IF I=1 THEN I=0
470 GOTO 400
480 IF INKEY(72)=0 OR INKEY(73)=0 THEN #1(1,1) = #1(1,1):SCORE = 770:GOTO 400
490 IF INKEY(72)=0 OR INKEY(73)=0 THEN #1(1,1) = #1(1,1):SCORE = 770:GOTO 400
500 IF INKEY(72)=0 OR INKEY(73)=0 THEN #1(1,1) = #1(1,1):SCORE = 770:GOTO 400
510 IF INKEY(72)=0 OR INKEY(73)=0 THEN #1(1,1) = #1(1,1):SCORE = 770:GOTO 400
520 IF INKEY(72)=0 OR INKEY(73)=0 THEN SCORE = 990:GOTO 400
530 FOR I=1 TO 3:PRINT:GOTO 400
540
550 ' print player new position
560
570 FOR I=0 TO 3:LOCATE #1,10+I:PRINT #1(1,1):NEXT I:RETURN
580
590 ' computer boat move
600
610 DI:IF NOT #1 THEN DI:RETURN
620 #1(1,1) = #1(1,1)
630 IF #1(1,1) < 25 OR #1(1,1) > 21 THEN #1(1,1) = #1(1,1):RETURN
640 #1(1,1) = #1(1,1)
650 FOR I=0 TO 3:LOCATE #1,10+I:PRINT #1(1,1):NEXT I:RETURN
660
670 ' set computer boat move
680
690 DI:IF NOT #1 THEN DI:RETURN
700 #1(1,1) = #1(1,1)
710 #1(1,1) = #1(1,1)
720 #1(1,1) = #1(1,1)
730 DI:RETURN
740
750 ' update score and lives
760
770 CLS #2:PRINT #2, #1:RETURN
780 CLS #3:PRINT #3, #1:RETURN
790 CLS #4:PRINT #4, #1:RETURN
800 CLS #5:PRINT #5, #1:RETURN

```

[illegible]

C64 CHARACTER DESIGNER

Congratulations! You've won the chance to add truly professional graphics to your programs. Now we're not going to provide you with your very own Tracy Crowder design, but we believe we can offer the next best alternative — a character designer used by a major software house to create its own best-selling games.

When Commodore finally, in conjunction with Your Commodore, is offering Virgin Games' Character Designer at a price we're sure any of you can afford, for 99p, plus a few hours' post-shipment, the documentation on the following pages, you could soon be creating (or maybe even ac-

quainting) the warts of art screaming from the screen of games such as *Indiana Jones II*, *Samurai* and Virgin's latest arcade adventure, *Gate of Demons*.

But that's not all. With your Character Designer, you will create a competition system which will enable you to enter the Home Computing Weekly/Your Commodore Design a Screen competition.

Once you're up to grips with your Character Designer, use it to design your own screen. Send your work off art to Virgin Games before the deadline date of July 31st, 1985. The winner will be the master who, in the eyes of our panel of judges has produced the most professional

and artistic screen with the assistance of his or her Character Designer. The name of judges consists of Jeremy Cooks of Virgin Games and the editors of Home Computing Weekly and Your Commodore.

And the prize? The first prize will be a day at Virgin Games and the right of name, your graphics used in a Virgin Game. The 4th runner-up will not receive a copy of Virgin's *Gate of Demons*. How would any winning programme enter such an offer?

Don't delay! Fill in the coupon below and send it with your cheque for 99p, made payable to Virgin Games, to Virgin Games Ltd, 3-4 Vernon Yard, London W1B.

An exciting chance for you to design a screen — and put your work in the shops via Virgin Games' character designer

Virgin Games Character Designer Special Offer

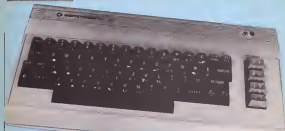
Name _____

Address _____

Postcode _____

Please send me _____ Character Designer(s) at 99p each.

Send to: HCW Character Designer offer, Virgin Games, 3-4 Vernon Yd, London W1B



colour to the colour of the current one.

26. Shift/B — Load

Loads a file. See **Character and Disc Operations**.

28. Shift/C — Save text

Will save the current character set.

29. Shift/C — Save colour table

Will save colour table.

27. Shift/A — Save screen

Will save the designed screen.

25. H — Help

Will display the HELP screen.

Q — Quit

Will enter the Screen Designer.

With "Where the instructions say "press any key" (eg to leave SELECT mode) if the key pressed is a valid editing command it will then be executed.

Cassette and disc operation

These are the system messages as they appear on-screen:

SAVE COLOURS (type of save or load)
CASSETTE OR DISK (type of device you are using)
FILENAME BRKES the same you give your file

then

PRESS RECORD AND PLAY ON TAPE
OK

SAVING BRKES PRESS ANY KEY

When any legal or user command is entered the screen will clear and the following will appear:

a. The type of operation (**LOAD**, **SAVE CHAR**, **SAVE COLOURS** or **SAVE SCREEN**).

b. Select device — press C or D to select cassette or disc, followed by Return to confirm your choice. Character Designer will reformat the previous device used, so normally you will just need to press Return.

c. A filename of up to 16 characters can be entered from the keyboard followed by Return. Dojo may be used as a wildcard but the cursor keys and Insert will not work. The only command on which a null file name can be used is during a cassette load.

"When using a disc drive "D" & NAME" can be used for a save and replace and wildcards can be used for loading.

If using cassette the border will change to light blue and the prompt "PRESS PLAY ON TAPE" or "PRESS RECORD & PLAY ON TAPE" will appear. The screen will then blank and your Commodore will load or save in the normal manner.

d. After the load or save is completed, pressing any key will return you to the designer in SELECT mode.

Screen Designer

To enter the Screen Designer press "Q" in EDIT or SELECT mode. If no screen has been designed or loaded you will see a screen full of garbage. Press SHIFT/CLE to clear the screen.

At the top left of the screen a white cursor will be visible, this can be moved around with the joystick. Pressing F1 will put the current character at the cursor position. The character can be changed either by returning to the character designer and SELECTING a different character, or by pressing "B" or "QB" (see below).

NB: Only characters from the same set may be used on screen in any one time. This is used by the Screen Designer will be the currently chosen or character designer mode.

Summary of Screen Designer commands

- a. SHIFT/CLR clear screen
- b. HOME home cursor
- c. SPACE put a space at cursor position
- d. F12 BUTTON put current character at cursor position with colour from colour table
- e. Q display current character at cursor position. When "B" or released the character will disappear
- f. F1 change cursor colour from white to black or vice versa
- g. B against a new character, this will only work if the cursor is on the bottom right

then. These bottom right text will be replaced by the current character set. The cursor may be moved around in usual and pressing F12 will select the character under the cursor. No other commands will work while the character set is displayed. The set will turn off automatically where the cursor is moved out of the bottom right. Now and the bottom of your screen will reappear unchanged.

- h. Q get new character — if Q is pressed the character under the cursor becomes the current one
- i. T enter TEXT mode. The cursor will turn grey and text can be entered from the keyboard. To exit TEXT mode press Return
- NB:** TEXT mode ignores that the Alphabet is in the normal Commodore appearance, i.e. A=1, Z=26
- j. Q quit Screen Designer and reverts to Character Designer in SELECT mode

Hints and tips

This section is intended for the beginner but contains much information of use to the more advanced user.

Creating multi-colour graphics

In an normal 64-resolution colour mode the Commodore 64 can only display two colours in each character square: the background colour and the

character colour. Luckily it is possible to display four colours in one space at the cost of halving the horizontal resolution. Although this can give the problem a slightly chunky look, much more colourful displays are possible.

Instead of a character being eight pixels wide, as in 16-colour, a multi-colour character is only four pixels across, each pixel being twice the width of a 16-bit pixel. This means that with Character Designer we are able to use two dots for each of the four horizontal pixels with the colour chosen according to the chart below.

OFF OFF	Background colour
OFF ON	Multi-colour one
ON OFF	Multi-colour two
ON ON	Character colour

You will notice that the chart says that when both dots are "on" the double pixel will be displayed in the character colour. This is not quite true. If the character colour is between 8 and 7 (black to yellow) the character will be displayed in black. If the colour is between eight and 15 it will be displayed in multi-colour with the character colour appearing as character colour minus eight, e.g. if the character colour is 15 (light red) and multi-colour is on, any double pixels with both dots "on" will appear as colour $15 - 8 = 7$ (red).

To demonstrate this try setting multi-colour one to light blue, multi-colour two to white and the character colour to red

and watch multi-colour ON. Then enter the following data into a spare character using NULMEM:

BL 170, 4, 120, 45, 170, 8, 120

You should see a red character like Fig.1. Now use F1 to advance the colour to yellow. Press F1 three more times and the character should look like Fig.2.

You will notice that we are restricted to using the first eight colours (the ones printed on the keys) when using multi-colour, but if we wish to have the character actually appear in multi-colour we need to add eight to the desired colour code. This extra restriction applies to the multi-colour characters where we can choose from all 16 colours (See also Programmer's Reference Guide pp 115-118.)

Using graphics in your own programs

If you wish to use a character set you have designed in your own program you will need to use a program similar to the one then follow:

```
1 X = 0 : 1
2 IF X = 1 THEN LOAD "CHARS",1,1
3 REM YOUR PROGRAM
```

When run this program will firstly load the file called "CHARS", preventing of course that it is saved on tape

Fig.1

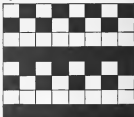


Fig.2

Light Blue
White
Red
Light Blue
White
Red



after your program or you change tapes after your program has loaded. This will cause the 64 to continue running the program from the first line (After a LOAD from within a program the 64 performs the equivalent of a GOTO (first line) retaining all variables). After loading "CHARS" X will no longer be equal to one, as your program will run as normal. This will also work with several files as follows:

```
1 X = X + 1
2 IF X = 1 THEN "CHARS",
  1,0
3 IF X = 1 THEN "COL
  (CHARS),1
4 IF X = 1 THEN "SCREEN",
  1,0
5 REM YOUR PROGRAM
```

You will need the programs saved to tape in the following order:

```
1 your program
2 "Chars"
3 "Colours"
4 "Screen"
```

While developing a program you might like to have the files saved as separate tapes. In that case you're saving some sort of prompt in line one:

```
1 X = X + 1 IF X < 4 THEN
  PRINT "CHANGE TAPE
  THEN PRESS ANY KEY"
  WAIT 100,1 POKE 190,0
```

NB: WAIT (N,X) will stop the program until you press a key and the POKE will clear the keyboard buffer.

Turning multi-colour on and off

To turn multi-colour mode on POKE 31270, PEEK (31270) OR 0.

To turn multi-colour mode off POKE 31270, PEEK (31270) AND 255.

Switching character sets

To choose which character set to use POKE 31271,X where X is one of the following values:

X	Set	Comments
30	2	Commodore upper case (default)
32	5	Commodore lower case
34	4	
36	3	
38	6	
40	7	



Note that if you move the screen from its normal position (3000-3039) the value of X will need to be changed accordingly. See also Programmer's Reference Guide pp 103-104.

POKEing the screen

Printing to the screen using strings of cursor characters is a rather tedious method and also suffers from a certain sluggishness. It is often faster to POKE directly to the screen memory.

If we first assign the following variables:

```
X = column number (0 - 39)
Y = row number (0 - 24)
SCREEN = 3000 (this is the
  screen position but it can be
  altered)
COLOUR = 31296 (the start of
  colour memory)
```

the address to be POKE'd can be simply worked out with the following formulae:

```
PS = 40 * Y + X
POKE SCREEN + PS, (char-
  acter number)
POKE COLOUR + PS, (col-
  our code)
```

or

```
100 X = 30 * Y + 1
110 PS = 40 * Y + X
120 POKE SCREEN + PS,1
130 POKE COLOUR + PS,1
```

will print a white "A" at the centre of the screen (provided that SCREEN and COLOUR have already been defined).

Using the colour table

If in addition to defining SCREEN and COLOUR we

define another variable:

```
CTAB = 30304
```

we can use CHAR to hold the character number the following table will print a character using the colour table created with Character Designer:

```
100 PS = 40 * Y + X
110 POKE SCREEN + PS,
  CHAR
120 POKE COLOUR + PS,
  PEEK (CTAB + CHAR)
130 RETURN
```

Background and border colours

To set up the colours of the background, border and the main colour:

```
Border — POKE 31280,X
Background — POKE 31291,X
Main colour 1 — POKE 31261,
  X
Main colour 2 — POKE 31261,
  X
```

where X represents one of the following colours:

```
0 black      8 orange
1 white      9 brown
2 red        10 light red
3 green      11 dark grey
4 purple     12 medium grey
5 grey       13 light green
6 blue       14 light blue
7 yellow     15 light grey
```

Downloading a screen

You may wish to use a screen you have designed using Character Designer in your own programs. To do this set up the Background, Border and Main colour, choose the character set and turn multi-colour on or off as desired, then use one of the following subroutines to download the desired screen on to the real screen.

NB: You must have loaded the screen, style set on and colour table beforehand.

```
1 BASIC
```

```
1000 SCREEN = 3000
    COLOUR = 31296 CTAB
```

```
= 30304
1010 52 = 24576 REM
    DESIGNED SCREEN
1020 1000 = 0 TO 999
1030 CH = PEEK(52 + 0)
1040 POKE SCREEN + CH,
    PEEK (CTAB + CH)
1050 52 = 1
1060 RETURN
```

2 Switching style border

```
1000 FOR I=0 TO 4:READ
    POKE(49152+I),NEXT
1010 DATA 160,200,150,190,
    4,171,202
1020 DATA 160,160,150,210,
    160,0,150,190
1030 DATA 150,210,150,210,
    171,150,160,202
1040 DATA 170,190,0,150,160,
    160,200,200
1050 DATA 240,200,160,200,
    150,150,160
1060 DATA 250,201,160,201,
    251,160
```

To download the screen type SYS 49152 (RETURN)

NB: This program will overwrite any speed pointers

Moving blocks of memory

There may be times when you wish to move a character set, screen or even a colour table to a different place in memory. The short program below will do this for you.

```
10 FOR I = 0 TO LI-1
20 POKE 49152 + I, PEEK
  (49152 + I)
30 NEXT I
```

Where LI is a number of bytes to be moved or follows:

```
Character set — 2048
Screen — 1000
Colour table — 256
```

40 — the address you want to move block to

50 — the address you want to move from (see the Memory Map)

Sprites

If you wish to use sprites in your program, remember to leave space for your sprite data. (The space occupied by a character set can hold the data for 12 sprites.) Note also that the space occupied by the ROM image (one, two and three) cannot be used for sprite data.

SCREENSTORE



If you own a Spectrum then try out this utility from R G Luxton, it could save you a lot of time

Screenstore is a program for the Spectrum 48K which enables up to 128 full screens previously recorded by the SCREENING program, to be stored in memory and recalled rapidly to the screen.

The program, in BASIC, is menu-driven and uses a small overhead code of 24 bytes housed in DATA statements to control the loading to memory, and to effect rapid recalling of the screen.

The program has a number of uses. For example, at a

conference calling "menus" of 8 pages for cheap window displays as a neat and effective way to store and display "across ad", to produce simple presentations, SCREENS images can be played into memory, SAVED to tape as code, LOADED back into the screen later, or used in other programs. Screens saved then are recalled to the screen instantly using a simple RANDOMISE call, once loaded into the screen, 5 screens can be SAVED as code on tape and re-LOADED individually or as a large single block of code.

How it works

At the STARTUP or 11000 in previous editions code and memory blocks being overwritten by the BASIC

program
9000-9440 module code for handling input of screens and recalling them to display
9400-9700 DATA for 1 array blocks of code for each screen
9700 and 9720 addresses for random address into module code for LOADING and calling each block
9900 print on line 12

Please note: All the Spectrum listings in SICAV are printed to a special format. All user defined characters are printed as capital letters but with an underline. In order to type them into your computer you need to place the machine in GRAPHIC mode and then press the capital letter indicated. If you follow these conventions to the letter the graphic characters will be shown on screen when you run the program.

```

1 REM #PROGRAM 1=
2 REM 1=RG.LUXTON
3 REM #SCREENSTORE
10 CLEAR 32768
20 GO SUB 9000
30 REM #MENU
40 BORDER 1: PAPER 1: INK 7: CLS
50 PRINT AT 8,7;"SCREENSTORE"; INK 7: ""
60 PRINT AT 3,4;"1. LOAD from Screen"; AT 7,4;"2. Display screen"; AT 7,4;"3. SAVE to memory"; AT 7,4;"4. LOAD from memory"; AT 11,4;"5. Description"
70 PRINT AT 12,7;"SELECT A NUMBER"; AT 16,7: ""
80 PRINT AT 20,2;"***END*** returns to Menu ***"
90 FOR i=0 TO 11 STEP 2: PRINT AT i,2: PAPER 7: INK 8: RIGHT i;" " AT 1,25;" "
100 PAUSE 15: PRINT AT i,2: PAPER 1: " AT 1,25;" "
110 LET a=INSTR(5: IF a<"1" OR a>"5" THEN GO TO 140
120 IF a="" THEN GO TO 140
130 BORDER 7: PAPER 7: INK 8: CLS: GO TO SCREENVAL a

```

```

140 NEXT i: GO TO 90
1000 REM *SCREEN* LOAD ROUTINE*
1010 BORDER 7: PAPER 7: INK 0: FLASH 0: BRIGHT 0: CLS
1020 IF i>5 THEN CLS: PRINT AT 10,10: FLASH 1:"FILE FULL":AT 1
2,0: FLASH 0: INVERSE 1:"Press any key": PAUSE 0: GO TO 0
1030 PRINT AT 21,0:"Load screen No. "i:"?": PAUSE 0
1040 LET a$=INKEY$: IF a$="" THEN GO TO 1040
1050 IF a$="y" OR a$="Y" THEN CLS: GO TO 1060
1055 GO TO 0
1060 PRINT AT 10,0:"Start recorder and press any key": PAUSE 0:
CLS: PRINT AT 10,12:"LOADING":AT 11,14:"NOW"
1070 GO SUB 9090
1080 PRINT AT 0,0: LOAD "SCREEN*
1090 RANDOMIZE USR 2
1100 CLS: LET i=i+1: GO TO 1010
2000 REM *DISPLAY SCREEN*
2010 PRINT 00:AT 0,0:"Screen No.?" (E to return): PAUSE 0
2015 LET a$=INKEY$: IF a$="" THEN GO TO 2015
2020 IF a$="e" OR a$="E" THEN GO TO 0
2030 IF a$<"1" OR a$>"5" THEN GO TO 2010
2040 LET r=VAL a$
2050 GO SUB 9110
2060 RANDOMIZE USR (i+12)
2070 GO TO 2010
3000 REM *SAVE TO MEMORY*
3010 BORDER 1: PAPER 0: INK 0: CLS
3020 PRINT TAB 7:"TO SAVE TO MEMORY:"TAB 7:"-----"
3030 PRINT AT 3,4:"To save all screens,"" enter 1,"i:AT
4,4:"To save a screen,"" enter 2."
3040 PRINT AT 3,16: PAPER 2: INK 7: FLASH 1: BRIGHT 1:"FIVE":AT
4,14: INVERSE 1:"SINGLE"
3050 INPUT a$: IF a$<"1" OR a$>"2" THEN GO TO 3050
3060 IF a$="2" THEN GO TO 3140
3070 PRINT AT 10,0:"To save all FIVE screens-""(Save"store""
CODE 31003,34240)... "
3080 SAVE "store"CODE 31003,34240
3090 CLS: PRINT AT 10,10:"Verify?": INPUT a$
3100 IF a$(1)!="n" OR a$(1)!="N" THEN GO TO 0
3110 CLS: PRINT AT 21,0:"Start recorder now...."
3120 PRINT AT 0,0: VERIFY "store"CODE 31003
3130 CLS: PRINT AT 10,12: FLASH 1:"OK": PAUSE 100: GO TO 0
3140 PRINT AT 10,0:"Enter number of screen to save": INPUT a
3150 IF a<1 OR a>5 THEN GO TO 3140
3160 RESTORE 9070
3170 PRINT AT 10,0:"To save screen No. "i:"?"(CODE "i$a(i)",600
0)....."
3180 SAVE "store"CODE a(i),6000
3190 CLS: PRINT AT 10,10:"Verify?": INPUT a$
3200 IF a$(1)!="n" OR a$(1)!="N" THEN GO TO 0
3210 CLS: PRINT AT 21,0:"Start recorder now...."
3220 PRINT AT 0,0: VERIFY "store"CODE a(i)
3230 CLS: PRINT AT 10,12: FLASH 1:"OK": PAUSE 100: GO TO 0
4000 REM *LOAD FROM MEMORY*
4010 BORDER 1: PAPER 0: INK 0: CLS
4020 PRINT TAB 7:"TO LOAD FROM MEMORY:"TAB 7:"-----"
4030 PRINT AT 3,4:"To load all screens,"" enter 1,"i:AT
4,4:"To load a screen,"" enter 2."
4040 PRINT AT 3,16: PAPER 2: INK 7: FLASH 1:"FIVE":AT 4,14: INVE

```

```

RSE 1;"SINGLE"
4850 INPUT a$: IF a$<"1" OR a$>"2" THEN GO TO 4858
4860 IF a$="2" THEN GO TO 4100
4865 IF 1>=3 THEN CLS : PRINT AT 18,9: PAPER 2: INK 7: FLASH 1:
"TO PROCEED WILL";AT 11,3;"OVERWRITE EXISTING SCREENS";AT 21,9:
FLASH 0;"Press any key": PAUSE 8: GO TO a
4870 PRINT AT 18,0;"To load all five screens""(Load ""CODE 3
1103)";AT 20,0;"Start the recorder and""Press any key.....":
PAUSE 8
4880 PRINT AT 9,0: LOAD ""CODE 31103: LET 1=4
4890 GO TO a
4100 IF 1<1 OR 1>5 THEN GO TO 1820
4105 PRINT AT 13,0;"The next empty screen is No. ";1
4110 RESTORE 9070
4115 IF 1>5 THEN GO TO 1820
4120 PRINT AT 13,0;"
    Load screen No. ";1;"(CODE ";1;"");AT 19,0;"Start recorder
and, ""Press any key": PAUSE 8
4130 PRINT AT 9,0: LOAD ""CODE a(1): LET 1=1+1
4140 GO TO a
5000 REM *DEMONSTRATION*
5005 BORDER 6: CLS
5010 FOR r=1 TO 5: GO SUB 9120
5020 RANDOMIZE USR (z+12)
5030 PAUSE 200: IF INKEY$="q" OR INKEY$="e" THEN GO TO a
5040 NEXT r: PAUSE 300: GO TO 5010
9000 REM *INITIALISE*
9010 LET a=38: LET M=a: LET 1=1: LET z=65343: LET n1=(z+4): LET
p2=(z+5): LET p3=(z+13): LET p4=(z+14)
9020 FOR i=1 TO z+23: READ j: POKE i,j: NEXT j
9030 DATA 33,0,64,17,62,0,1,192,26,237,176,281
9040 DATA 33,62,0,17,0,64,1,192,26,237,176,281
9050 DIM a(5)
9060 FOR s=1 TO 5: READ s(s): NEXT s
9070 DATA 58493,51647,44799,37951,31103
9080 RETURN
9090 REM *POKE LOAD ROUTINE*
9100 POKE p1,(127 AND 1=1)+(191 AND 1=2)+(255 AND 1=3)+(63 AND 1
=4)+(127 AND 1=5): POKE p2,(220 AND 1=1)+(201 AND 1=2)+(174 AND
1=3)+(140 AND 1=4)+(121 AND 1=5): RETURN
9110 REM *POKE DISPLAY ROUTINE*
9120 POKE p3,(127 AND r=1)+(191 AND r=2)+(255 AND r=3)+(63 AND r
=4)+(127 AND r=5): POKE p4,(220 AND r=1)+(201 AND r=2)+(174 AND
r=3)+(140 AND r=4)+(121 AND r=5): RETURN

```

Disassembly of Lines 9020 to 9040

Hex	Op	Operand	
FF3F	210040	LD HL,4000	Load HL,16384 (Display file)
FF42	113F00	LD DE,007C	Load DE,88 (Poke destination)
FF45	81C01A	LD BC,1AC0	Load BC,6840 (Bytes for 32 lines)
FF46	ED00	LDIR	Load, increment and repeat
FF4A	C9	RET	Return to Basic
FF4D	213C00	LD HL,003C	Load HL,88 (Poke call from)
FF4E	110040	LD DE,4000	Load DE, 16384 (Display file)
FF51	81C01A	LD BC,1AC0	Load BC, 6840 (Number of bytes)
FF54	ED00	LDIR	Load, increment and repeat
FF56	C9	RET	Return to Basic

```

5 REM *PROGRAM 2*
10 REM *SCREENSTORE DEMO*
15 REM *CIR.C.LUXTON*
20 BORDER 6: PAPER 6: INK 1: CLS
30 RESTORE : DIM c(100): FOR i=1 TO 2: READ c: LET c(1)=c: NEXT
40 LET a=1: GO SUB 200
50 INVERSE 1: PRINT AT 2,1:"ISLE OF WIGHT"
60 GO SUB 200
70 PRINT AT 5,14:"o";AT 7,21:"o";AT 10,10:"o";AT 10,20:"o";AT
12,3:"o";AT 13,21:"o";AT 15,21:"o";AT 17,17:"o";AT 18,10:"o"
80 GO SUB 200
90 INVERSE 0: PRINT AT 4,10:"Coves";AT 7,20:"Ryde";AT 11,9:"The
Woods";AT 9,20:"Beebridge";AT 13,0:"The";AT 14,0:"Needles";AT 15
,20:"Sandown";AT 15,20:"Shanklin";AT 17,21:"Ventnor";AT 19,10:"S
t.Catherine's";AT 20,10:"Port"
100 GO SUB 200
110 PRINT AT 17,1: INK 2: FLASH 1:"THE "AT 10,1:"SUNSHINE"
AT 19,1:"ISLE "
120 GO SUB 200
140 STOP
200 PRINT 10;AT 0,0: PAPER 5:"To save ""asp";: ""....": SAVE "
asp"+STR$ a+SCREENS : LET a=a+1: RETURN
9000 DATA 135,127,12,-9,0,0,7,-4,14,-2,0,-2,0,0,10,-11,0,-3,10,-
6,0,-4,-7,-1,-0,-7,-11,0,-5,-3,-6,-6,-3,-7,0
9010 DATA -13,0,0,-2,-3,-40,-15,-3,2,-1,5,-17,10,-2,0,0,4,-14,10
,-10,9,-0,9,0,0,-9,0,-10,-3,-7,-2,-6,1,0,3,1
9020 DATA 4,5,3,0,13,2,2,3,-1,4,1,21,11,7,1,20,9,2,5,12,11,4,0,2
,-4,2,0,2,2,3,1,2,-2,2,-4

```



INVISIBLE ALIEN

**Choose the Invisible
Arg in this
Spectrum game
from R G Shorman.
It should keep
you on your toes**

Here's a new hide-and-seek game which will be a great favourite with the kids. You must chase the Arg across the keyboard

and... You'll have to be quick because he's a very fast little creature!

There's one big snag: the Arg is invisible so no matter how hard you look you'll never find him. Don't worry too much though because you can see his tiny posture, look out for the little yellow flash!

You get 30 attempts to catch him and if you don't manage it you can always have another go.

Please note: All the Spectrum Intalogic INCV are pressed on a special format. All our designed characters are printed as capital letters with an underline. In order to type them into your computer you need to place the machine in GRAPHIC mode and then press the capital letter indicated. If you follow these instructions to the letter the graphic characters will be shown on screen when you run the program.



```

10 LET aa=1: LET ay=20
20 BORDER 1: PAPER 1: INK 0: CLS
30 GO TO B000
40 LET ya=1: LET yy=4
50 REM player action
60 NEXT n: PRINT "OK?AT ya,yy:"
70 IF INKEY="" THEN GO TO B000
80 IF INKEY="1" AND ATTR (ya+4,yy)=50 THEN PRINT AT ya,yy: INK 2:"a": LET
y
y=ya+4: GO TO B000
90 IF INKEY="2" AND ATTR (ya+2,yy+2)=50 THEN PRINT AT ya,yy: INK 2:"a": LE
T
ya=ya-2: LET yy=yy+2: GO TO B000
100 IF INKEY="3" AND ATTR (ya+2,yy+2)=50 THEN PRINT AT ya,yy: INK 2:"a": LE
T
ya=ya+2: LET yy=yy-2: GO TO B000
110 IF INKEY="4" AND ATTR (ya+4,yy)=50 THEN PRINT AT ya,yy: INK 2:"a": LET y
a
ya=ya+4: GO TO B000
120 IF INKEY="5" AND ATTR (ya+2,yy)=50 THEN PRINT AT ya,yy: INK 2:"a": LE
T
ya=ya+2: LET yy=yy+2: GO TO B000
130 IF INKEY="6" AND ATTR (ya+2,yy+2)=50 THEN PRINT AT ya,yy: INK 2:"a": LE
T
ya=ya-2: LET yy=yy-2: GO TO B000
140 GO TO B000
150 LET aa=1: PRINT @1: INK 0: BORDER 1:AT @,10:ay:" " IF ya=aa AND yy=ay
THEN GO TO B000
160 IF aa=8 THEN GO TO B000
170 PRINT AT ya,yy: INK 2:"a": BEEP .1,8: GO TO B000
180 LET aa=1: LET ay=20
190 REM arg action
200 PRINT "PLAY: 1: INK 0:AT aa,ay:" FOR n=1 TO 8: NEXT n
210 LET arg=1:INT random
220 IF arg=1 AND ATTR (aa+4,ay)=50 THEN PRINT AT aa,ay: INK 2:"a": LET aa=8
a
a GO TO B000
230 IF arg=2 AND ATTR (aa+2,ay+2)=50 THEN PRINT AT aa,ay: INK 2:"a": LET aa=8
a
240 LET aa=ay+2: GO TO B000
250 IF arg=3 AND ATTR (aa+2,ay+2)=50 THEN PRINT AT aa,ay: INK 2:"a": LET aa=8
a
260 LET aa=ay+2: GO TO B000
270 IF arg=4 AND ATTR (aa+4,ay)=50 THEN PRINT AT aa,ay: INK 2:"a": LET aa=8
a
280 IF arg=5 AND ATTR (aa+2,ay)=50 THEN PRINT AT aa,ay: INK 2:"a": LET aa=8
a
290 LET aa=ay-2: GO TO B000
300 IF arg=6 AND ATTR (aa-2,ay-2)=50 THEN PRINT AT aa,ay: INK 2:"a": LET aa=8
a
310 LET aa=ay-2: GO TO B000
320 GO TO B000
330 PRINT AT aa,ay: INK 0:"a": BEEP .1,8: GO TO B000
340 PRINT AT ya,yy: INK 2: PAPER 0: BRIGHT 1:"a": FOR n=1 TO 8: BEEP .005,n:
N
EXT n
310 PRINT @1: BRIGHT 1:AT @,10:"YOU SCORED "ay:" - WELL DONE"
320 PRINT @1:AT 1,1: BRIGHT 1:"WOULD YOU LIKE ANOTHER GO Y/N"
330 IF INKEY="" THEN GO TO B000
340 IF INKEY="y" OR INKEY="Y" THEN CLS : RUN
350 CLS : GO TO B000
360 FOR n=1 TO 4: FOR m=1 TO 4: BORDER aa: PAPER a-1: BORDER a-1: PAPER m: CLS :
NEXT m: NEXT n
370 GO TO B000
380 DIM l: FOR n=8 TO 32: PRINT AT n,8:"E": NEXT n
390 PRINT AT @,8:""
400 FOR n=36 TO 88 STEP 32: FOR y=36 TO 116 STEP 32: PLOT n,y: DRAW 32,32: DRA
W @,32: DRAW -32,32: DRAW @,-32: NEXT y: NEXT n
410 FOR n=88 TO 232 STEP 32: PLOT n,116: DRAW @,116: NEXT n
420 DIM z: FOR n=1 TO 36 STEP 4: FOR a=5 TO 17 STEP 4: PRINT AT @,a:"O": NEXT

```


COOKIE MONSTER



By Paul and Cory Leathlow

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```

300 B=INT(RND*10)
310 IF 30<A<B THEN 280
320 CALL HCHAR(1,3,112,28)
330 CALL HCHAR(1,8,32,B)
340 NEXT J
350 CALL HCHAR(23,3,112,28)
360 CALL HCHAR(5,3,112,28)
370 FOR I=8 TO 22 STEP 2
380 RANDOMIZE
390 P(1)=INT(RND*28)+3
400 P(2)=INT(RND*28)+3
410 P(3)=INT(RND*28)+3
420 FOR C=1 TO 3
430 CALL HCHAR(1,P(C),104)
440 CALL HCHAR(1-1,P(C),104)
450 NEXT C
460 NEXT I
470 FOR I=6 TO 22 STEP 2
480 FOR C=1 TO 3
490 RANDOMIZE
500 P(C)=INT(RND*28)+3
510 IF ((I=6)+P(C)=3)+((I=22)+
(P(C)=3)) THEN 490
520 CALL GCHAR(1,P(C)-GET)
530 IF (SET=104)+(SET=128) THEN 4
90
540 CALL HCHAR(1,P(C),128)
550 NEXT C
560 NEXT I
570 RX=22
580 MY=3
590 CHR=96
600 PCN=32
610 CX=6
620 CY=3
630 PCC=32
640 T=T+1
650 CALL HCHAR(RX,MY,CHR)
660 CALL HCHAR(CX,CY,120)
670 IF T<41 THEN 690
680 GOSUB 1290
690 TIM=0
700 CALL KEY(3,K,S)
710 IF S<0 THEN 740
720 TIM=TIM+1
730 IF TIM=20 THEN 690 ELSE 700
740 IF K=76 THEN 940
750 IF (K<70)+(K>72) THEN 700
760 ON K/2-34 GOTO 770,790
770 CHR=97
780 GOTO 800
790 CHR=96

```

```

800 IF (MY+(K-71)<3)+(MY+(K-71)>
30) THEN 700
810 CALL GCHAR(RX,MY+(K-71),2)
820 IF Z<32 THEN 900
830 MY=MY+(K-71)
840 CALL HCHAR(RX,MY-(K-71),PCN)
850 PCN=2
860 IF PCN=104 THEN 640
870 CALL GCHAR(RX+1,MY,CH)
880 IF CH<32 THEN 640
890 RX=RX+1
900 CALL HCHAR(RX-1,MY,PCN)
910 CALL HCHAR(RX,MY,CHR)
920 GOTO 870
930 ON (Z/8)-12 GOTO 1030,1050,1
080,1110
940 CALL GCHAR(RX-1,MY,Z)
950 IF Z<32 THEN 980
960 IF PCN=104 THEN 700
970 GOTO 990
980 IF Z/8=104 THEN 1020
990 RX=RX+1
1000 CALL HCHAR(RX+1,MY,PCN)
1010 GOTO 850
1020 ON (Z/8)-13 GOTO 1090,1080,
1110
1030 CHR=98
1040 GOTO 830
1050 CALL CLEAR
1060 PRINT "OUCH! YOU BUMPED INT
O THE '1' LEDGE!"
1070 GOTO 1220
1080 CALL CLEAR
1090 PRINT "DOO! IE MONSTER ATE Y
OU!"
1100 GOTO 1220
1110 CALL SOUND(500,880,0)
1120 SCH=SCH+1
1130 IF SCH+SCC=27 THEN 190
1140 IF (PCN<104)+(CX>76) THEN 1
180
1150 RX=RX+1
1160 CALL HCHAR(RX+1,MY,PCN)
1170 GOTO 640
1180 MY=MY+(K-71)
1190 CALL HCHAR(RX,MY-(K-71),PCN)
1200 PCN=32
1210 GOTO 870
1220 GOSUB 1590
1230 PPRINT " PLAY AGAIN ?<Y
/N?"

```

```

1240 CALL KEY$(K,S)
1250 IF S=0 THEN 1240
1260 IF K=78 THEN 1280
1270 GOTO 170
1280 END
1290 IF CX<MX THEN 1310
1300 NCX=0
1310 IF CY<MY THEN 1330
1320 NCY=-1
1330 IF CX<MX THEN 1350
1340 MCX=1
1350 IF CY<MY THEN 1370
1360 MCY=0
1370 IF CY<MY THEN 1390
1380 MCY=-1
1390 IF CY<MY THEN 1410
1400 MCY=1
1410 CALL GCHAR(CX+MCX,CY+MCY,CH
R)
1420 IF (CHAR(32)+(CHR(104)+(CH
R)>112) THEN 1500
1430 CX=CX+MCX
1440 CY=CY+MCY

```

```

1450 CALL HCHAR(CX-MCX,CY-MCY,PC
C)
1460 PCC=CHR
1470 CALL HCHAR(CX-CY-120)
1480 T=0
1490 RETURN
1500 IF (CHR(96)+(CHR)99)/THEN 15
10 ELSE 1080
1510 CALL SOUND(500,220,0)
1520 SCC=SCC+1
1530 IF SCC+SCM=27 THEN 190
1540 CX=CX+MCX
1550 CY=CY+MCY
1560 CALL HCHAR(CX-MCX,CY-MCY,PC
C)
1570 PCC=92
1580 GOTO 1470
1590 PRINT : "COOKIE MONSTER BOT"
1600 C=C+(SCC=1)+1)
1600 PRINT : "YOU GOT A SONICCK(S
CM)+1"
1610 RETURN

```

It's easy to complain about advertisements. But which ones?

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Most of them comply with the rules contained in the British Code of Advertising Practice.

But some of them break the rules and warrant your complaints.

If you're not sure about which ones they are, however, drop us a line and we'll send you an abridged copy of the Advertising Code.

Then, if an advertisement bothers you, you'll be justified in bothering us.

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Have you ever looked in the articles and programs in HCW and thought you could have written that?

Why not try? We welcome submissions from readers and are always interested in your ideas and suggestions.

Submissions tend to fall into one of three categories...

Programs are always supplied on cassette and are accompanied by full details of the program variables. Please type these details double-spaced. Layouts are helpful, but not essential. What is vital is that the programs should be completely error-free, so please double-check.

Articles on certain aspects of using home computers should be no longer than 1000 words. Try to keep to the style you see in HCW and include programming examples where they will help the reader understanding the subject. We will convert your detailed illustrations into final artwork.

We also use short tips, articles and brief programming routines. Any discoveries you have made about your machine might be of interest to other readers.

All contributions are acknowledged and those accepted for publication are paid for at competitive rates. The copyright in each work will pass to Argus Specialist Publications Ltd. Keep a copy of your work and include a telephone number and an SAE. Please label everything clearly with your name and the machine concerned.

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Chipper sounds

After finishing *Scorers* with a score of 17750 points, I wonder if Virgin had any other plans for the Amstrad CPC464. I received an Amstrad as a Christmas present and *Scorers* is by far the best game I've got.

In contrast to Mark Under, I've had no problems (well, a few perhaps) in loading *Scorers*. I can however cope with the screen which appeared in VIC-W 100, but perhaps Virgin should've put such an introduction in loading screen.

Thanks for the solid-state Amstrad program. I like collecting all the parts of Chris Griffith's series. Being one of his devoted readers, I intend to get under a good before another month. This is my

to FRY 1-20-4-3
to GUN 1-20-4-3
to GUN 1-20-4-3
to GUN 1-20-4-3
to GUN 1-20-4-3
to GUN 1-20-4-3

Michaela Mann, Weymouth, W
Germany

Tape heads all clear

I was very interested in the letter from Karen Ralph about Soft Aid. I also bought Soft Aid for the 44 and couldn't load *Quasimodo*. I couldn't report as I had written on the cover. The load numbers on the cover are wrong. I also bought a second copy which would not load *Quasimodo*.

I then bought the Amstrad Head Alignment Tape. I can now load *Quasimodo* and also highly recommend the Amstrad tape.

Mr Russell, Copenhagen

Barred of the Reviews?

After reading your review of our game "Barred Of The Road" in your May 7-13 edition, I felt I had to write and correct a few errors in the review.

The object of the game is to destroy the Great King of Power. Rather than 45 words (supposing a reading age of 20), the adventure programme will cover 200 words.

The game is priced £3.95 on cassette (£8.95 on micro-drive cartridges) and is available by mail order from DELTA 4 Software, The Milling, New Road, Swanton, Hants SO1 1PE.

To your reviewer's question, Judith is the kindred-spirited who originally inspired the program. Stephanie Stranger is a friend and Catherine... well, never mind.

I hope the nearest address hasn't inconvenienced Games Workshop or any of our customers.

Fergus McNeill, DELTA 4 Software, The Milling, New Road, Swanton, Hants SO1 1PE

Our apologies to Delta 4 for the wrong point and address printed with the review. We hope that the points made in Mr McNeill's letter clear up any misunderstanding.

Merish mag

After taking your magazine again after a long break, I find it very useful and I must admit that the content goes better with every issue. I also enjoy complement you in not telling the VIC-20 program die.

I find it very sad to see the machine neglected by both Commodore and software houses. I find these magazines very VIC users who feel the same.

So please publish more programs like *Squashed Frog* (VIC-W 119). It is superbly graphed and shows the true capability of the VIC.

Mr Sanford, Elsworth Beauchamp

Hi-score mix-up

After seeing the notice proclaiming "Each month's winners win £10" in VIC-W 110, I thought I'd have a go on my favourite game, *Scorers* on the Amstrad CPC 464. It has taken me a while now to achieve a reasonable score, this being 52,200, releasing eight winners and returning to the necessary. To achieve higher scores, as many winners as possible have to be killed. It also helps to finish with a full energy count.

Antony Pelant, Harrogate

Sorry, you're not the wrong end of the stick. If you look back to issue 110, you'll notice that we're only offering £10 for winners on *Scorers* in the Amstrad. Look at the news item on page four of that issue for further details.

Book problem resolved

I recently bought a book called *Using Your VIC-20 as a Music Synthesizer* by Paul Cornfield. The book arrived, the book was published with no program listing. Through various, the publisher, I sent him a note with Mr Cornfield in Australia. He has very kindly sent me a note with some of the program and would like to help other owners of the book.

He has asked me to write you with as many as most of the major Commodore do it is possible. It was rather a matter of fact. I do not have a copy of the book but I don't think it is a good idea to go to such an extent, and I will give the information on to Mr Cornfield.

Thomas Corry, Burton

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LETTERS PAGE

COMPUTERS IN
SOCIETY

In the first of a regular series, Mr Graham talked to Edna Smith, who explained how computers can revolutionise handicapped peoples' lives

Computers, the facilities, communications, and communications is an essential need for handicapped people. According to Edna Smith, who's in charge of Bridget House, the headquarters of London's Redbridge Association for Handicapped People, there are three things vital to those who are handicapped: communications, information and mobility.

And she's one of the most about these new systems, which has recently been involved in

making the group to make plans towards the idea of various communications, in particular with the powers that be, such as the G.L.C.

Edna's enthusiastic about the potential of computers to change peoples' lives, and in particular the sector of the community she knows the most about: disabled people. She suffered from polio when she was 15, and she's been confined to a wheelchair ever since.

"But I don't see my illness as a tragedy," she said. "It

changed my life and it was very traumatic at the time, but it's not tragic."

Edna is active in RAMP, which works together with Redbridge Council to improve disabled peoples' living conditions and access to public places. Ironically, Edna will soon be going to Redbridge Town Hall tomorrow, and has to be helped up the steps but that should change too in the future.

"It's a very slow process for anything to change," she said. "Handicapped people don't find it easy to change, either. But when I'm asked about it, one project to help handicapped people with computers. At Woodhouse, which is over 100 years old, by a committee of handicapped people, we've got computer terminals. Computers are a magnificent opportunity for disabled people

to perhaps an employment, and also release them from... and get them meeting again."

The most so. "We want all members of the centre to communicate. Some people speak a lot, but this handicapped can now be overcome and these people can participate in many things through using a computer."

Bridge House is funded partly by the GLC and partly by the Department of the Environment. Edna is aware that handicapped people need to increase their involvement with areas of devices, so they've set up the Bridge Forum so that local handicapped people can meet socially, and then be encouraged to take up the theme at a higher level, with the authority concerned.

It's taken two years since the rolling stage for the computer to be installed at Bridge House. "I went to a GLC conference run by the Greater London Association of Disabled People

(GLADP), which is our parent body. They proposed that four through computers be used for research and training information — the other three are Braille, Newline and Biling — and just after Christmas something came up. It was quite amazing — within six weeks all the documents were made, the money supplied and the equipment installed."

The centre boasts an IBM XT, which provides word-processing facilities. Edna also has an IBM at home, meaning of the project, and the said it to look up by modem.

"It gives me so much independence," she said. "It makes me much more flexible. I can work in the evening if I want. Because of my disability my arms and hands are deteriorating, so I can't always work office hours."

And another benefit of the computer is access. "We're now linked up with the GLADP computer, and we enjoy it

immensely which we've never had before. We can now find out all the information we need in much less than half the time." The computers are used to run one meeting last and link together lots of small groups.

According to Edna, handling isn't a problem this year, but it will be. She's very grateful to the GLC for supplying the answer "It's marvellous for it to have been made possible. We've used the money they gave us very well."

Edna's dream was to have, she's a person — but she wasn't affected by any translation at the thought of approaching a computer for the first time. "I've never had any fear," she said. "I've always seen the potential of modern technology, if it's used properly."

"I'm still very new to it," she admitted. "I'm not going to learn to program, though I've got far too much to do, and we have to use our resources as best

we can."

She continued, "It's a very exciting project. We're going to learn a lot more, and see how we can use computers. I'm enjoying the machine. But one thing I don't enjoy is if people say I'm too old. My grandson, who's 14, laughs at me. He's got a computer, but what I like about the way he uses it is that it's just one aspect of his life. He still plays rugby, goes sailing and does cross-country training."

The computers at BRHF go a long way to achieving two out of three of their aims, information and communication. And Edna's enthusiasm about the future.

Computers have given a lease of new life to disabled people in the London borough of Hammersmith — but what about all the other boroughs which weren't chosen for the experiment? And what about the funding, particularly with the GLC in jeopardy?

Programs are always supplied on cassette and are accompanied by full details of the program variables, how the program works and any hints on conversion you can offer. Please type these details double spaced. Listings are helpful but not essential. What is vital is that the programs should be completely error free, so please double check.

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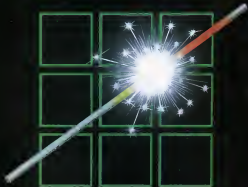
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